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THE STUDENT wishes to be a medium whereby farmers can obtain any information they desire concerning the School of Agriculture of the University, and to this end invites questions from any and all. Write, asking anything you care to know and we will cheerfully answer through the STUDENT.

AGAIN has the Ohio State Grange demonstrated the wisdom of its council and its worthiness of the confidence and support of the farmers of our State. The wisdom of the majority in voting to lay the silver question on the table until that question shall have emerged from the realms of bitter partisan controversy, is evident, for certainly nothing but harm could come by adopting by bare majority—as many farmers' organizations have done to their sorrow and destruction—resolutions demanding the carrying out of a certain definite policy on any question regarding which the members of the order everywhere are divided; and over which bitter political war is being waged, thus introducing dissentions which must inevitably take on political color, dissipating the energy so much needed to carry out the many objects with which all members of the organization are in hearty accord.

THERE is probably no state in which the Farmers' Institute has been more widely developed and more thoroughly systematized than in Ohio, and in which more results are obtained for the same expenditure of money. The double system of central direction by the State Board of Agriculture on the one hand, and that of local responsibility and help on the part of those in the locality in which the institute is held, seems to be a happy solution of the many difficulties in the management of these institutes. The universal verdict is that so far this season the attendance has been larger and the interest more spirited than ever before. While this may have been in part due to the exceptionally fine weather, there seems to be no doubt that the institutes are really growing in attendance and interest.

The cap sheaf of the Farmer's Institute system is the State Farmer's and Breeders' Institute, which is held this year on Tuesday and Wednesday, January 15 and 16, in the Senate Chamber of the Capitol. On Thursday the annual Agricultural Convention will be held in the same place. This is a delegate convention provided for by law, and consists of representatives from the county agricultural societies. The principal business of this convention is the election of five members of the State Board of Agriculture, and subsequently by them the election of officers.

In connection with these meetings there are also meetings of the several breeders' associations, which takes place chiefly on Tuesday evening.

On Wednesday evening the second

annual meeting of the Ohio State Dairy Association will take place in the Senate Chamber. The University will be represented at these meetings by Prof. D. S. Kellicott, who lectures Wednesday evening on Insect Pests of Farm Animals; by Prof. DeWitt Goodrich, who has a paper before the Dairy Association Wednesday evening on New Features in Butter Making, while Professor Hunt and Mr. Stump are down to open discussions. Professor Hunt also has a paper before the Draught and Coach Horse Breeders' Association Wednesday evening on Animal Mechanism.

Among the other lecturers from the state are Director C. E. Thorne, Wooster, O., Mr. S. H. Todd, Wakeman, O., W. T. Taylor, Central College, O. Among those outside of this state are Mr. C. W. Wells, of Parkersburg, W. Va., and S. M. Shepard, Indianapolis, Ind., the well known writer on swine husbandry.

The features of these series of meetings, however, will be the four addresses by Prof. G. E. Morrow, of Champaign, Ill., and the three addresses by J. H. Saunders of the Breeders' Gazette, Chicago, Ill.

On Thursday evening there will be also a convention of Presidents and Secretaries of agricultural and fair associations, in which there will be addresses by the President, J. E. Griffith, Marysville, O., and by Assistant Secretary, J. W. Fleming and by A. J. Borys, Lancaster, O.

Every farmer who can possibly do so should attend this series of meetings.

Conversation with leading members of the Ohio State Grange confirms the wisdom and importance of the suggestion made in the December STUDENT that the University should invite and make earnest endeavor to secure a meeting of the Ohio State Grange at the University.

The farmers of Ohio, when they see the University manifesting an earnest and sincere desire for close contact with them in the interest of the progression of agriculture, are highly appreciative, and there is no doubt that if the proper advances are made by the University, that in December, 1896, a meeting of this great organization can be had, on the University grounds, which will do a vast deal to bring the University and the half of the people of the State represented by the Grange, into harmony of action along the lines of higher industrial education in regard to which they can but have unity of purpose and interest.

F. P. Stump, business manager of THE STUDENT, farm foreman and assistant to Professor Hunt, has just returned from a trip through Northwestern Ohio, where he went to select a farm upon which to try as in a crucible, the efficiency of the training afforded by the O. S. U. School of Agriculture. Mr. Stump tells us he has selected a farm in the famous Bear Swamp of Van Wert—his native county. As he is practically without capital, he goes in debt for the land and equipment. We will all await with deep interest the success which we believe must come to his efforts if health does not fail him.

Men of his stamp, who having worked their way through the best training school for agriculture, and then with high faith and courage, leave an alluring public life with salary attached, in order to begin lone-handed to carve farm and fortune from eighty acres of semi-swamp forest, are the kind of men to show the people of Ohio what can be expected from the right kind of an agricultural college.

Prof. G. E. Morrow, Champaign, Ill., will deliver a course of lectures before the students of the School of Agriculture during the week beginning January 21, on Milk, its Producer and Production. This course will consist of five lectures, one each day at 3:30 P. M. Professor Morrow is well and pleasantly known to the students here.

PROF. WM. R. LAZENBY

Secretary of the School of Agriculture.

William R. Lazenby, Professor of Horticulture at the Ohio State University, was born in Yates county, New York, December 5, 1852. His father was born in England and his mother is of English descent. He spent his boyhood days on his father's farm, securing in the meantime a primary education in the local common schools and at Pen Yan Academy.

At the age of 17 he taught a district school and a year later entered Cornell University. He paid his own way at this institution and graduated therefrom in 1874. Immediately after graduation he was appointed instructor in Horticulture at Cornell University, and in 1877 was promoted to an assistant professorship, which position he held until 1881. In addition to his situation as member of the faculty of Cornell University, Prof. Lazenby held at different times from 1874–1881 the following offices: Botanist of the Western New York Horticultural Society; Secretary of the Cornell Experiment Station; Horticulture Editor of the *Husbandman;* Lecturer of the New York State Grange.

In 1881 he resigned his position at Cornell and accepted the professorship of Botany and Horticulture at the Ohio State University. In 1891 the growth and prosperity of the University made it necessary to form two departments out of what had formerly existed as one, and Professor Lazenby chose to become our instructor in Horticulture, which position he still retains.

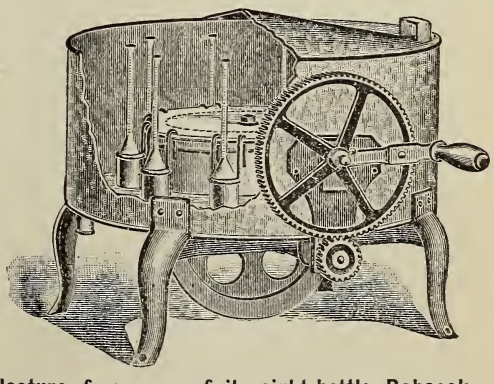
Since coming to Ohio Professor Lazenby drafted a bill for the establishment of the State Experiment Station, and by the aid of Hon. J. H. Brigham, then State Senator, this bill became a law. He at once organized the work and was director of the Station until 1889, when he resigned to devote his whole time to the work of his department in the University.

For six years Professor Lazenby was Secretary of the Society for the Promotion of Agricultural Science, and editor of its annual proceedings. He is a member of the various National and State Societies, and has written much on Agricultural and Horticultural topics.

His chief publications are given in the report of the Ohio Agricultural Experiment Station, and in the proceedings of the several societies mentioned above. He is known throughout the State and Nation by his contributions to leading Agricultural and Horticultural journals and by his lectures at farmers' institutes. His work is of a high order and it is his aim to add constantly to his knowledge and ability.

The Vermont Farm Machine Co.

Has very kindly donated to this paper, for the use of its editors, who are on the Institute



lecture force, one of its eight-bottle Babcock testers, similar to the cut shown herewith. Also a leatherette case and cartridge belt for its convenient packing and carrying.

Secretaries of Institutes who write for any of these men to do institute work, will please say whether they care to have the Babcock tester shown.

Weather Wisdom.

The subject of weather wisdom is not of recent date. From classic times the sky and clouds have been carefully studied in endeavor to predict the kind of weather that was likely to ensue.

Aristotle has recorded in his work on meteors, a number of the popular prognostications of the weather. The records of early nations, in these popular forecastings, are found in myths which describe all kinds of phenomena relating to the weather and which were explained only by means of supernatural agencies.

Our forefathers studied the weather and observed the appearance of the sky and clouds and also the movements of animals, birds and other natural objects.

Shepherds and sailors, as all know, have associated certain appearances with certain kinds of weather. All these have been thrown in proverbs or trite sayings, and with the perfected system of meteorology of to-day, many of these can be explained.

When the barometer was invented a great advance was made — a new light fell on the observing of weather conditions. But, the greatest advance has been made during the last twenty-five years, owing to the introduction of daily symnoptic charts. These are maps which show the earth's surface with barometer height. The barometer readings are marked down at their respective places and lines drawn through the places of equal pressure. These lines are called isobars—lines marking out equal pressure. In looking over these charts we find that there are two sets, one marking the high barometer and the other the low barometer.

The area of low pressure, or cyclone, as it is called, has usually a circular form, and as a rule, moves in an eastern or northeastern direction; and the other the area of high pressure, called an anti-cyclone, also nearly circular in form, but almost always stationary in position.

There is a distinct relation existing between the distribution of pressure and force and direction of wind and rain. The wind always blows nearly parallel with the isobars, having the region of low pressure on the left hand. The closer the isobars are, the greater the intensity of the wind.

Nearly all our weather is of the cyclone or anti-cyolcne type, and is entirely dependent on the form and distribution of the isobars.

One of the principles laid down for the cyclonic weather is a blue sky in the extreme front of the depression. The barometer begins to fall, and then or even before, a bank of cirro-stratus, preceded by a halo bearing sky makes its appearance, which gradually becomes lower and denser and forms an over cast dirty sky.

Before the whole front of the depression the temperature rises and we feel that peculiar sensation felt before rain. On the right there is a cumilus-stratus form of clouds. On the left the air is cool, rain has fell. On the right rain is to be expected.

When the trough of the depression has passed, the barometer rises, the wind changes, the air becomes cooler, the clouds break and clear away. The aqueous vapor is owing to the depression, and when this depression advances and the atmosphere becomes gloomy, close and muggy, some people are troubled with rheumatic pains and neuralgia; old wounds and corns are painful, animals and birds are restless, and these appearances or results have been expressed in trite sayings. For example: "If corns, wounds and sores itch and ache more than usual, rain is to fall shortly."

Again:

"A coming storm your shooting corns presage,
And aches will throb, your hollow tooth will rage."

Again:

"Hark! I hear the asses bray,
We shall have some rain to-day,"

And again:

"When birds of long flight—rooks, swallows, or others—hang about home

and fly up and down, or low, rain is to be expected."

As has been said, the rear of the depression and on the left hand side, the wind is from the northeast and north, and then we find fine clear weather. When the rear of the depression has nearly passed the wind shifts around to the northwest.

Hence the saying: "Do business with men when the wind is in the northwest."

The bringing of fine weather improves men's tempers, as opposed to the rheumatic or neuralgic sensation felt in front of the depression.

But, these are enough to show the bearing of the proverbs, and that there is a great deal in them after all.

The other kind of weather is the anti-cyclone or fine weather. The isobars on a chart are far apart, sometimes but two or three, and extend over a large area.

The air is calm, the sky generally clear, the temperature is high in day and low in night. In summer the sun is very brilliant during day, cools down at night, and we have a heavy dew.

And we have sayings such as these: "Heavy dews in hot weather indicate a continuance of fair weather, and no dew after a hot day foretells rain." As opposed to the low depression the light genial weather raises the spirits of every animal.

Hence, "When larks fly high and long, expect fine weather."

Again, "When owls whoop much at night expect fine weather."

These few proverbs taken from many hundreds show what the perfected system of meteorology can do.

Nearly every county in each state in the Union has weather stations. These report to central offices in the states, from thence to the central office at Washington, where other nations also report. By this means a true knowledge of the weather of the whole world can be ascertained.

With few exceptions forecastings are correctly made for from twenty-four to forty-eight hours. Generally nine forecasts out of ten are correct, certainly not less than seven out of ten.

With the present advancement meteorologists hope to perfect the system of weather forecastings. Not only one class of the people, but all will receive the full benefits of the Weather Bureau. All can hail its advance and wish speed for its further perfection.

THE UNIVERSITY FARM.

Its Purposes and Plan of Management.

It has been truly said, that "the purpose of the University farm is not to make money, but men." Not to make money directly and immediately, but to make of the boys who come from the homes of Ohio, to enjoy its advantages, men, who can not only make money abundantly upon other farms, but men who can and will perform all the duties of citizenship patriotically and well. To make men, who also as instructors of and investigators for the farmers of our state, through agricultural schools, experiment stations, journals, clubs, etc., will sincerely and efficiently labor for the cause of a better agriculture and its superstructure, better, more prosperous and happier agriculturists, who are consequently better citizens.

To this end the farm supplements the lecture room and laboratory work, not only by placing the boy in the midst of practical agricultural operations where he learns to do and does all kinds of farm work, but also by placing responsibility on his shoulders, requiring him to plan as well as execute, thus developing the boy into a man; into a manager, a thinker-to-purpose. The plan of management whereby these purposes are accomplished are as follows:

First, as nearly as possible, all the work of the farm is done by agricultural students, who, although paid for the time employed, are expected to become more and more proficient in doing farm work.

Second, certain divisions of the farm work are placed under the immediate care of chiefs, who are also students in the School of Agriculture, who have proved themselves especially efficient workmen, and have thus been indicated as worthy of promotion. Because of greater capability and responsibility they are paid more for their time. They are students, and here they find vast opportunities for development.

At present there are six divisions, viz: dairy, horse, swine, poultry, tools, and records and accounts. Each chief has immediate charge of the work in his division, doing part himself and being responsible for all.

Third, the farm foreman, in the immediate charge of the farm as a whole. He is also assistant to the Professor of Agriculture, aiding him in any and all of his work, doing anything from digging ditches and cleaning stables, to lecturing to the classes and before Institutes. He is a graduate of the School of Agriculture, and is in a certain and wide sense a post-graduate student of agriculture, and while he is paid slightly more for his time than are the chiefs, a large part of his compensation is his opportunity for development.

Here we might for a moment step from the University farm to speak of one more course necessary to the development of a complete agriculturist such as we must have at the head of agricultural colleges. The course on the private farm, on one's own farm, and it were better to be a farm of one's own earning, too, where the sensitive nerves of the pocket-book are touched, soothingly or ruthlessly according, as success or failure attends each effort. This is the finishing school for the agricultural scientist necessary to his development into the most useful helper of his fellow farmers. Although the efficiency of the University farm might for some of its purposes be increased by retaining the same foreman a long time, and the labors of the head of the department be decreased thereby, since the position affords a course of training, frequent changes are desirable to give opportunity for the development of more men in that way.

Fourth and last, but of the greatest importance to the farm as an educator, is the superintendent of the farm, the professor of agriculture, who having completed with great success all of the above mentioned courses, is a complete and rounded agriculturist, one wholly capable of leading not only those under him on the University farm and in the School of Agriculture, but also those on the other farms of our state.

Thus, briefly, is the University farm from the rocks up.

Fertitizers for Garden Crops.

EDITOR AGRICULTURAL STUDENT:

As a subscriber for your journal I desire advice and assistance at your hands regarding the most economical manner of fertilizing land for gardening and general trucking; whether barnyard manure or commercial fertilizers? The best way to apply, etc.

Last year I applied a good coating of barnyard manure (20 tons or more per acre), but the season was unusually dry and the results unsatisfactory. Much of the manure was plowed up this fall apparently untouched.

The land has been used for trucking for years, but does not respond to barnyard manure. Clover grows well. It is second bottom clay and sand. A yellow clay subsoil mixed with a good amount of sand, affords good drainage generally. It is good corn or cabbage land. What shall we do? Can't you give a condensed report?

V. C. STIERS,
Hocking County, Ohio.

It is well known that the food of plants consists of a number of elements or simple compounds, including nitrogen, phosphorus, potash, lime, magnesia, iron, and a few others. With the exception of the first three, a sufficient quantity of all these essential elements exist in nearly all agricultural soils.

Nitrogen is most likely to be deficient because it exists in a soluble form and is easily washed out of the

soil. Phosphoric acid and potash may also be lacking.

Two questions present themselves to every intelligent farmer and gardener. First. *What elements of plant food are lacking in my soil?* Second. *How can I supply my crops with the needed nitrogen, phosphoric acid and potash in the most available form and at the least expense?*

Stable manure is usually preferred to other forms of fertilizers, because it is a complete manure, containing nitrogen, phosphoric acid and potash. It is impracticable however to base the value of stable manure upon the quantity of the different chemical elements it contains. Stable manure affects the physical conditions of the soil, and influences the temperature, moisture, porosity and capillary action.

It also adds micro-organisms, the effects of which, although not well understood, can scarcely be overrated. Coarse stable manure usually improves the drainage of heavy soils. On the other hand it makes some soils too dry, and this is probably one reason why it so often fails to respond.

For successful truck farming or market gardening the soil must be extremely rich. It is also important, as a rule, to have crops mature early.

In early spring when the soil is wet and cold, stable manure does comparatively little good. At this time some special nitrogenous fertilizer, like nitrate of soda, will furnish the needed nitrogen in a cheaper, because more available form. It is not too much to say that one pound of nitrate of soda applied early in spring will furnish more available nitrogen to early crops than 150 pounds of well rotted stable manure. The stable manure may be of more value later provided the season is favorable.

It should be remembered that a rotation or alternation of fertilizers is frequently as valuable as a rotation of crops. On most soils an excessive use of stable manure applied year after year loses its effect, and in extensive gardening it is always wise to practice a systematic alternation of fertilizers.

We cannot give Mr. Stiers any specific directions without knowing more about the conditions of his soil and the kind of crops he wishes to raise.

Corn Culture.

During the spring of 1893 a timothy field on the University farm was plowed for corn. This field was divided into three series of seven plats each, the plats being eight rows wide and twenty-two rods long. One plat of each series was treated alike, the object of the experiments being, primarily, to discover less expensive methods of cultivation and, secondarily, to compare deep and shallow cultivation of corn. One plat of each series was mulched. The object was to see if the principal advantages of cultivation were not the saving of the moisture, that the weeds would otherwise take, rather than the mere stirring of the soil.

The following table gives the kind of culture, the depth of culture, the yield of stover and the bushels of corn per acre for the season of 1894 and the average yields for 1893 and 1894:

METHOD OF CULTURE.	Depth of Cultivation in inches.	Pounds of Corn Stover per acre, 1894.	Bushels Corn per acre, 1894.	Av. Pounds Stover per acre, 1893 and 1894.	Av. Bushels Corn per acre, 1893 and 1894.
Mulched.....	None.	5776	39.6	4594	44
Gould harrow, once....	¼ to ½	3555	34.1	3319	39
Gould harrow once..... Planet jr. with stick, twice....	1 to 2	3731	48.1	3399	47
Tower shallow cultivator, three times.	1 to 2	3697	48.6	3441	48
American spring tooth cultivator. three times	2	3602	47.3	3344	46
American spring tooth, three times.....	4	3677	46.5	3260	44
American spring tooth, once; Tower, twice...	4 1 to 2	3629	44.8	2286	43

The mulch of coarse, strawy manure was applied the last week of June when the corn stood from 10 to 15 inches high.

In 1893, the mulch was heavy enough to prevent, in large measure, the growth of weeds and the best yield was obtained from the mulched plats. In 1894, the mulch was lighter and the weeds were not prevented from growing, so that while the early growth of the corn was much larger than from the others as shown by the excess of stover, the yield of grain was much reduced. The yield was also doubtless modified by the fact that the mulch of last year was plowed under, while the other plats had no such manning. The fact, however, that those plats which were only harrowed once and not otherwise cultivated also became quite weedy and the yield was considerably reduced, would seem to indicate that the reduced yield was chiefly due to the growth of weeds.

All the cultivated plats were harrowed at first with the Gould harrow —a harrow, triangular in shape, made of scantling through which sixty-penny wire nails were driven and afterward bent a little. It is drawn from one side and not from the corner. The traces are hitched directly to the harrow and this gives it a little horse motion which makes its work still more effective. The corn was all drilled, using the plow attachment, which leaves the corn in the bottom of a small furrow and which allows the use of the harrow during a more extended period. The Gould harrow is drawn by one horse and and takes two rows at a time.

The Planet Jr. garden cultivator with a stick, a little shorter than the width of a row, attached to the rear shovels so as to regulate the depth, proved very effective and an economical tool. Once in a row was sufficient, the stick being just long enough to throw a little dirt around the corn.

The Tower cultivator was used with good results both years. This cultivator has two gangs of knives which scrape the ground and cut the weeds. The surface is left in nice shape forming a mulch one inch or two deep. Its feature is that it can not be run very deep.

The spring tooth cultivator was used both as a deep and a shallow cultivator. The greatest difficulty with it is to keep it from going too deep.

The experiment, I think has satisfactorily solved the question it sought to solve. It shows that there are cheap and effective methods of cultivating corn. The fastening of a stick to the shovels of a Planet Jr. is an ingenious scheme that saves much time in doing the work, besides compelling shallow cultivation. The results of both years agree with many other experiments as to the advantages of shallow cultivation. The experiment also shows that the primary object of cultivation is to kill weeds and that cultivation need not be any oftener nor any deeper than is necessary to kill weeds.

Care of the Cow During Calving Time.

To every careful dairyman, the question often arises, what is the best way to take care of my cows just before, during and immediately after calving? Though this is only a short period, it is a critical time in the care of the dairy cow. It seems to be a time when she is not the master of her situation. She can not stand the common as well as at other times. Some of you have doubtless noticed that at this time there is a growing predisposition to disease. And is it to be wondered at? Are not those organs which come so quickly into activity at this time, becoming more and more abnormal, more and more distant from the original? Are not these greatly developed organs almost machines which man has bred into her? However true this may be we know that if there is any time more than another that a cow should receive special care, it is about the time she gives birth to her young.

This care should first consist in getting her in comfortable quarters, which should be so inviting that she

will feel at home in them. She should be where no unusual thing will disturb her. Her quarters should be well lighted which will mean more than half disinfected. The disinfection should not stop there; her quarters should at least be whitewashed, and if there has been any contagious or infectious disease in them they should be further disinfected by using one of the stronger disinfectants as chloride of lime, carbolic acid or creoline.

During this period she should receive the purest food and water attainable. Too concentrated foods not to be used; but care should be taken to see that they are nutritious. Clover hay, if well cured, makes a very good food. After calving she should receive grain of some kind that will stimulate the milk flow. Oats is the best grain for this purpose.

At times troubles appear after calving, even when the greatest care is taken. One of these is the retaining of the placenta. This should be taken away from the cow soon after the calf is twenty-four hours old. If done then the disagreeable features of the operation are largely obviated. If one has never seen this done, the better way would be to call a veterinarian to do it. It is, however, a comparative simple operation and one which all dairymen should know how to do.

Milk fever, as it is commonly called, may occur at this time. After the cow is once down with the genuine disease there is a very small chance for recovery. A veterinarian's advice is the best then, but be sure he is a good one. This is one of the cases where a quack can easily expose his ignorance.

After all danger of disease has passed and the cow has been put back with the others, the quarters which she occupied should be thoroughly cleaned and again disinfected and put n readiness for another cow.

See offer on page 58.

COST OF HATCHING CHICKS.

Hens Compared with Incubators.

An experiment was carried on here last spring to find the cost of hatching chicks. That is, the cost of good strong chicks per head.

It was our intention to set a two-hundred egg size incubator, as well as fourteen hens on the same number of eggs, but owing to the fact that a hen does not always set when one wants her to, we only could set eight. Two hundred and ten eggs were put in the incubator and one hundred and ten eggs were put under the hens on the 22d of April. Eggs were selling at twelve cents per dozen at that time.

COST FOR RUNNING INCUBATOR TWENTY-ONE DAYS.

210 eggs at 1 cent each	$2.10
5 gal. oil at 10 cents per gal.	.50
1 lb. copper sulphate at 20c. lb.	.20
10 hrs. labor at 15c. per hr.	1.50
Total	$4.30

We used the Hedden incubator, manufactured here in Columbus. It heats the eggs by means of a hot water tank. The water is kept warm by a lamp on the outside of the machine. The heat is regulated by a simple gravity battery which opens or closes a valve when the machine gets too hot or too cold. The ten hours labor is the actual time it took to turn eggs, fill lamp, test eggs twice and all necessary work. There were one hundred and sixty-one eggs left after second testing. From these we got one hundred and thirty-four chicks which was about 83 per cent. of the fertile eggs, or 64 per cent. of all the eggs put in the machine. One hundred and twenty-eight of these chicks proved strong and healthy. The price of these would be 3.36 cents per head.

COST OF CHICKS FROM HEN.

120 eggs at 1 cent each	$1.20
24 lb. mixed feed at 1 cent per lb.	.24
7 hrs. labor at 15 cents per hr.	1.05
Total	$2.49

The feed was not weighed, but the quantity fed daily was known approximately.

These hens were set in boxes and cared for in the usual way. They hatched seventy-seven chicks from one hundred and twenty eggs or about 64 per cent. of all eggs set. Of these chicks seventy-five proved strong and healthy. The price of these was 3.32 cents per head.

All these chicks from hens and incubator were put into brooders and raised by hand. They all did well and those hatched by hens did not seem any stronger than those hatched by incubator. Early this fall when the pullets were separated from the cockerals no one could tell which was hatched by the hens or the incubator.

This would seem at first sight to place hens and incubators about equal. But this is the conclusion I would draw.

To hatch a few chicks, as fifty or one hundred in course of a season, the hens are the cheapest; but to hatch in larger numbers, as one hundred upward, and when we want them hatched, the incubator is the cheapest. Why?

1. Because it costs just the same to care for and feed each setting hen of twenty as it does for one. The capacity of hens to cover eggs does not increase only as we increase the number of hens. The incubator can be built with any capacity we desire. It costs but little more to run a large size machine than a small one.

2. Because we can hatch when we desire. Early chicks are more valuable, for breeders or the show pens, than those hatched later in the season. Hens do not often wish to set in winter, therefore if early chicks are desired the incubator is the more reliable setter.

A Great Offer; for a Purpose.

We wish every farmer in Ohio to read the AGRICULTURAL STUDENT. We wish every one to become thoroughly acquainted with his University and with his School of Agriculture. This is our wish. Our purpose is to gratify this wish. Our offer is, to send any one in Ohio, not an alumnus, or employe of the University, the AGRICULTURAL STUDENT from now until July, 1895, for 10 cents. Postage stamps accepted. Address the business manager,

F. P. STUMP,
Columbus, Ohio.

Professors Hunt and Lazenby spent a considerable portion of their vacation attending farmers' institutes in various parts of the State. They report very successful meetings and a steadily increasing desire to hear more about the School of Agriculture of the State University.

The fourth annual meeting of the State Academy of Science was held in Orton Hall, State University, December 27 and 28. Over sixty papers, covering a wide range of scientific subjects were presented. Among the members of the faculty of the School of Agriculture, who took an active part in the proceedings of the Academy, were Professors Kellicott, Kellerman and Lazenby.

Mr. E. E. Bogue, '94, a graduate in the department of Horticulture and Forestry, has been spending the holiday vacation in Columbus, renewing old acquaintances and forming new ones. He also took an active part in the meeting of the Academy of Science. Mr. Bogue is now engaged in practical Horticulture in Ashtabula county.

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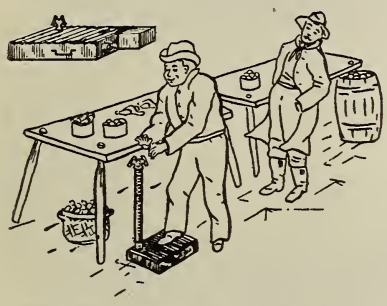
Mr. W. C. Werner, who resigned his position in the University last spring, is now a prosperous florist in Painesville. In a recent letter to Prof. Lazenby he states that he is getting well started in his business and that the demand for fine flowers and forced vegetables is good and constantly increasing. Mr. Werner will be remembered as the enthusiastic botanical collector and the popular assistant in the Botanical Department.

Orcutt-Warner.

Mr. T. Holton Orcutt, who formerly took special work in Civil Engineering at the University, was married on the evening of December 19, to Miss Clara S. Warner. The service was read by Rev. Mr. Slutz, at the home of the bride, London, Ohio. Mr. and Mrs Orcutt have purchased a fine farm in Madison county, where they will be at home after January 15. Mr. Orcutt is a very successful farmer and stock raiser and the STUDENT sends congratulations.



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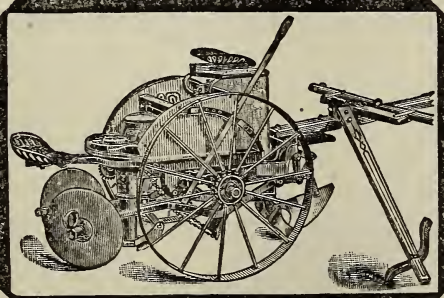

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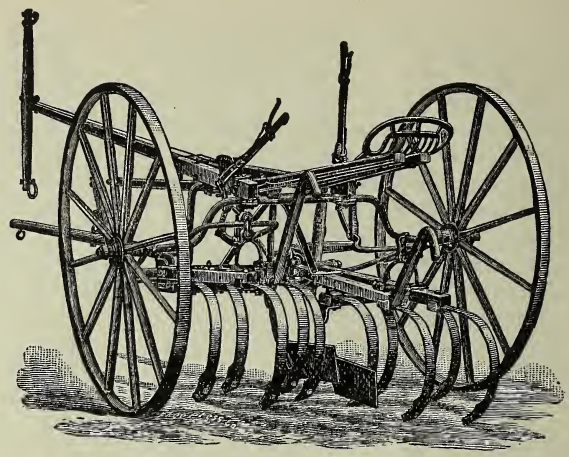
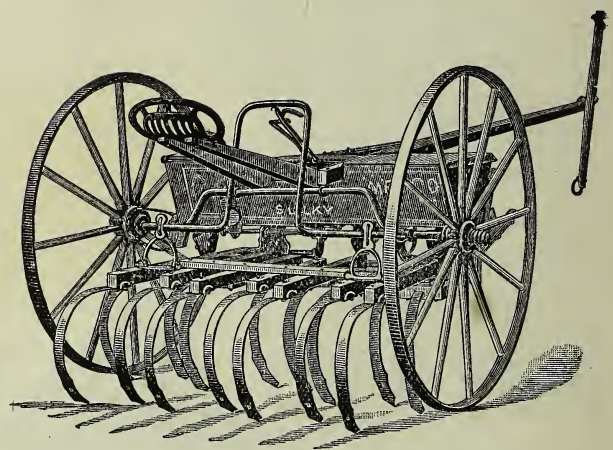
We are anxious to have every farmer examine carefully the New American Harrow, Seeder, Corn Cultivator, Bean Harvester, Stalk Cutter and Fertilizer Distributor, and compare them with others. Above all, we desire to show their practical working in the field, being confident that the superior methods which we claim will be recognized.



New American as a Cultivator.



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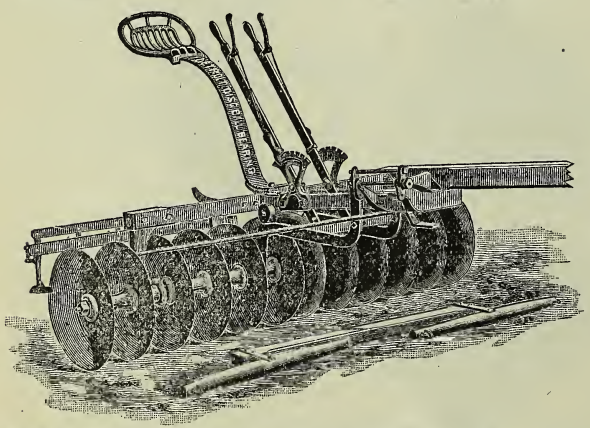

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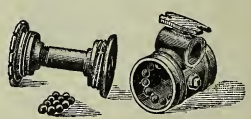

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